

Cooper Lighting Solutions Photometric Lab
1121 Highway 74 South
Peachtree City, GA 30269



Scaled data based on original data using
LM-79-2019 Approved Method: Electrical and Photometric Measurements of Solid-
State Lighting Products

Test Report Prepared for
Cooper Lighting Solutions

Brand: NEO-RAY

Report Number: P915903

Luminaire Tested: DFN2DIP-4P3F0-060D040US930-FLLONL

Issue Date: 11/21/2024

Test Information

Test Method: LM-79-2019
Report Number: P915903
REPORT IS A COMBINATION OF REPORTS P900577 AND P897473
Test Lab: INNOVATION CENTER
Issue Date: 11/21/2024
Manufacturer: COOPER LIGHTING SOLUTIONS
Product Line: NEO-RAY
Catalog Number: DFN2DIP-4P3F0-060D040US930-FLLONL
Description: 3 foot, 90deg - 4way Define Geo, with Direct Frosted Lens, Indirect Open No Lens
Light Source: -
Ballast/Driver: -

Summary

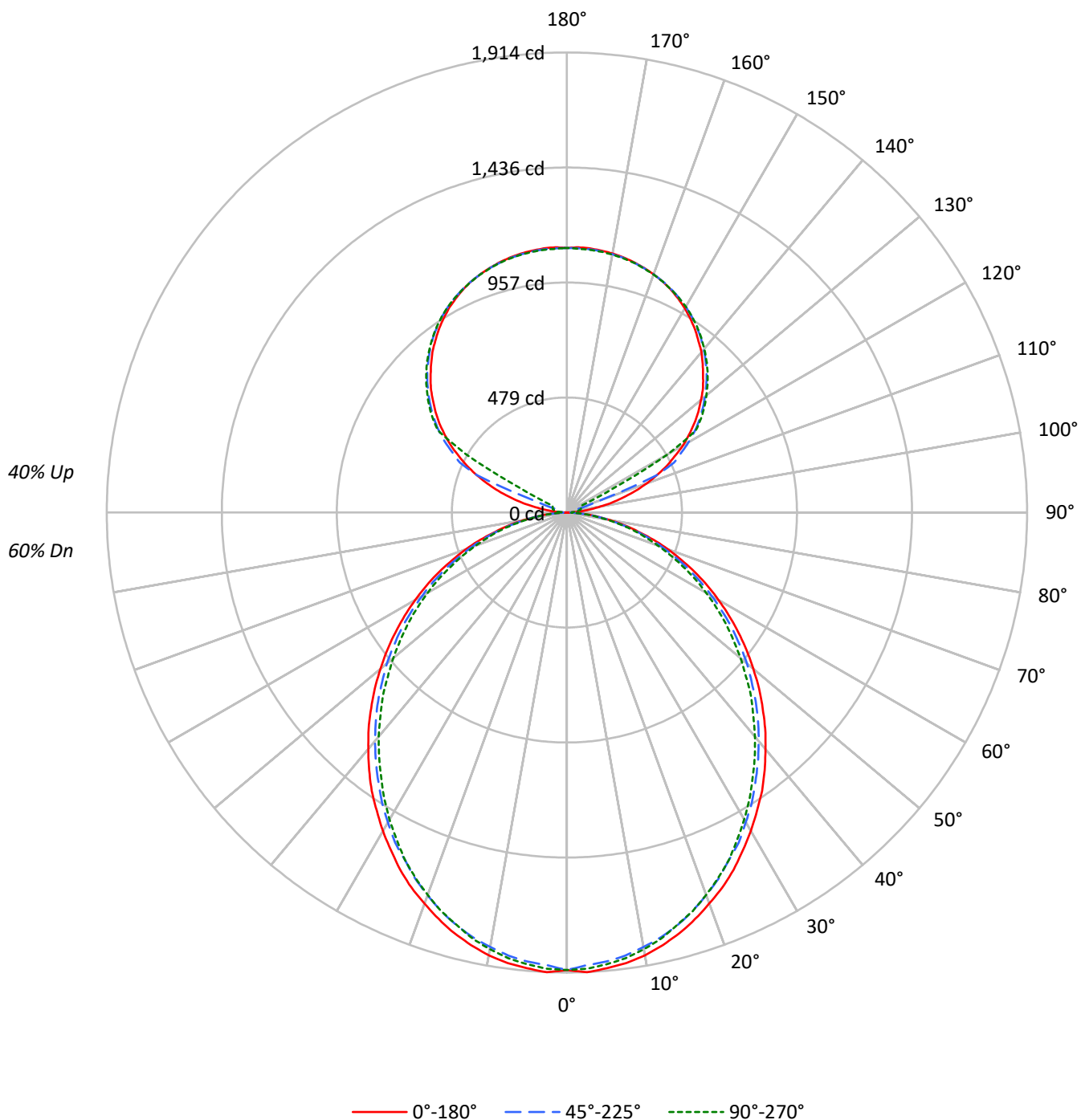
Lumens per Lamp: N/A
Luminaire Lumens: 8071.4 lumens
Efficiency: N/A
Efficacy: 87.9 lumens/watt
Spacing Criteria (0/90/45): 1.2 / 1.16 / 1.29
Luminous Opening: Rectangular w/ Sides (W: 3.07' x L: 3.07' x H: 0.1')
CIE Type: Semi-Direct

Input Watts (W): 91.8
Input Voltage (V):
Input Current (Ain): NR
Voltage Rise (V): NR
Power Factor: 0.9963
Total Harmonic Distortion (THDi): 0.065
Frequency (hertz): 60
Stabilization Time: NR
Operation Time: NR
Ambient Temperature (°C): NR
Test Distance: 24 FT

TEST NUMBER: P915903

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US930-FLLONL

Luminous Intensity Polar Plot



TEST NUMBER: P915903

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US930-FLONL

COEFFICIENT OF UTILIZATION - ZONAL CAVITY METHOD:

RF	20				20				20				20				20
RC	80				70				50				30				10
RW	70	50	30	10	70	50	30	10	50	30	10	50	30	10	50	30	10
RCR																	
0	110	110	110	110	102	102	102	102	89	89	89	77	77	77	65	65	65
1	100	96	92	88	93	90	86	83	78	75	73	67	66	64	58	56	55
2	91	84	77	72	85	78	73	68	68	64	61	59	56	53	51	49	47
3	83	73	66	60	77	69	62	57	60	55	51	52	48	45	45	42	40
4	76	65	57	51	71	61	54	48	54	48	44	47	42	39	40	37	34
5	70	58	50	44	65	55	47	42	48	42	38	42	37	34	36	33	30
6	64	52	44	38	60	49	42	36	43	37	33	38	33	30	33	29	26
7	60	47	39	33	56	44	37	32	39	33	29	35	30	26	30	26	23
8	55	43	35	30	52	40	33	28	36	30	26	32	27	23	28	24	21
9	52	39	32	26	48	37	30	25	33	27	23	29	24	21	26	22	19
10	48	36	29	24	45	34	27	23	30	25	21	27	22	19	24	20	17

AVERAGE LUMINANCE (cd/sqm):

	0°	45°	90°
0°	2169	2169	2169
5°	2171	2137	2153
10°	2152	2107	2123
15°	2119	2071	2077
20°	2075	2021	2029
25°	2031	1962	1975
30°	1976	1908	1905
35°	1925	1843	1832
40°	1861	1777	1763
45°	1797	1712	1691
50°	1727	1643	1609
55°	1654	1563	1533
60°	1572	1468	1445
65°	1481	1370	1342
70°	1366	1250	1232
75°	1207	1107	1128
80°	1014	924	933
85°	714	612	611

MAXIMUM LUMINANCE 45°-90°:

Horizontal Angle: 0°

Vertical Angle: 45°

Luminance: 1797 cd/sqm

TEST NUMBER: P915903

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US930-FLLONL

ZONAL LUMENS:

Zone	Lumens	% Fixture
0°-10°	179.1	2.2
10°-20°	504.1	6.2
20°-30°	740.8	9.2
30°-40°	860.4	10.7
40°-50°	859.3	10.6
50°-60°	749.3	9.3
60°-70°	553.9	6.9
70°-80°	313.4	3.9
80°-90°	84.6	1.0
90°-100°	36.3	0.4
100°-110°	135.3	1.7
110°-120°	358.8	4.4
120°-130°	595.1	7.4
130°-140°	632.1	7.8
140°-150°	587.5	7.3
150°-160°	472.3	5.9
160°-170°	304.4	3.8
170°-180°	104.8	1.3
0°-30°	1424.0	17.6
0°-40°	2284.3	28.3
0°-60°	3892.9	48.2
0°-90°	4844.8	60.0
90°-120°	530.4	6.6
90°-150°	2345.2	29.1
90°-180°	3227.0	40.0
0°-180°	8071.4	100.0

CANDELA DISTRIBUTION:

	0°	22.5°	45°	67.5°	90°	Flux
0°	1903	1903	1903	1903	1903	
5°	1903	1896	1876	1891	1887	181
15°	1812	1801	1777	1785	1776	510
25°	1640	1625	1594	1598	1594	755
35°	1415	1397	1367	1356	1347	884
45°	1151	1138	1111	1091	1084	889
55°	871	860	838	816	807	779
65°	588	577	558	542	533	581
75°	307	304	295	284	287	328
85°	75	73	71	66	64	84
90°	1	10	16	20	21	7
95°	52	25	31	35	34	61
105°	242	266	49	57	60	259
115°	458	471	491	123	65	451
125°	647	658	673	679	681	577
135°	801	814	821	829	828	619
145°	929	929	942	948	944	581
155°	1023	1016	1026	1030	1024	472
165°	1078	1074	1076	1082	1076	305
175°	1103	1097	1099	1105	1097	105
180°	1101	1101	1101	1101	1101	

TEST NUMBER: P915903

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US930-FLLONL

CANDELA DISTRIBUTION (FULL):

	0°	22.5°	45°	67.5°	90°
0°	1903.4	1903.4	1903.4	1903.4	1903.4
2.5°	1914.5	1905.4	1885.1	1903.4	1899.9
5°	1903.4	1896.2	1876.0	1890.6	1887.1
7.5°	1890.6	1879.8	1859.5	1874.3	1870.6
10°	1870.6	1857.8	1835.8	1850.4	1844.9
12.5°	1843.1	1832.1	1810.2	1819.3	1815.7
15°	1811.9	1801.1	1777.2	1784.6	1775.5
17.5°	1773.5	1762.7	1738.8	1747.8	1738.8
20°	1731.4	1720.5	1694.8	1700.3	1693.1
22.5°	1689.5	1672.9	1649.0	1649.0	1645.4
25°	1639.9	1625.4	1594.2	1597.7	1594.2
27.5°	1584.9	1572.1	1548.4	1543.0	1533.9
30°	1530.2	1515.4	1488.1	1482.6	1475.2
32.5°	1471.5	1460.7	1431.3	1420.2	1412.9
35°	1414.9	1396.6	1367.3	1356.2	1347.0
37.5°	1350.8	1334.2	1305.0	1292.1	1283.0
40°	1284.9	1270.2	1240.9	1224.6	1217.2
42.5°	1220.8	1206.1	1177.0	1158.5	1147.6
45°	1151.4	1138.5	1110.9	1091.0	1083.5
47.5°	1083.5	1070.7	1041.5	1021.2	1010.3
50°	1012.1	1003.0	977.4	951.7	942.6
52.5°	942.6	929.8	906.0	885.9	873.1
55°	871.3	860.2	838.3	816.4	807.2
57.5°	799.9	790.8	766.9	744.9	737.5
60°	728.4	721.2	695.6	675.4	669.9
62.5°	658.8	646.0	627.8	609.5	602.2
65°	587.6	576.6	558.3	541.8	532.6
67.5°	514.4	505.1	488.8	476.0	468.6
70°	446.6	439.3	422.7	409.9	402.8
72.5°	377.1	369.7	360.6	347.8	342.3
75°	307.4	303.9	294.6	283.7	287.4
77.5°	245.2	237.9	234.2	228.8	223.3
80°	183.1	181.2	177.5	172.0	168.4
82.5°	124.5	124.5	122.7	115.4	115.4
85°	74.9	73.2	71.4	65.8	64.1
87.5°	33.0	29.4	25.6	20.2	18.3
90°	0.7	9.5	15.9	20.0	21.4
92.5°	20.0	16.7	19.1	20.7	21.4
95°	51.7	25.4	31.0	35.1	34.2
97.5°	93.2	27.9	40.6	43.0	43.8
100°	141.0	31.9	45.4	51.7	53.3
102.5°	193.5	192.0	47.0	55.7	58.1
105°	242.1	266.0	48.6	57.3	60.5
107.5°	298.6	318.5	50.2	58.9	62.1
110°	352.9	369.5	139.4	59.8	62.9

TEST NUMBER: P915903

CATALOG NUMBER: DFN2DIP-4P3F0-060D040US930-FLLONL

CANDELA DISTRIBUTION (continued):

	0°	22.5°	45°	67.5°	90°
112.5°	403.8	418.1	404.6	61.3	63.8
115°	457.9	471.4	491.4	122.6	65.4
117.5°	504.9	520.8	534.4	420.4	211.8
120°	557.5	569.4	583.8	593.4	485.8
122.5°	602.0	614.8	630.8	635.5	636.3
125°	647.4	657.9	672.9	678.6	680.9
127.5°	688.8	700.0	712.0	720.0	720.7
130°	727.9	740.7	749.3	758.1	757.4
132.5°	767.7	778.1	786.8	794.0	793.3
135°	801.2	814.0	821.1	829.1	827.5
137.5°	836.2	845.7	853.8	861.7	859.3
140°	870.4	876.9	885.6	892.8	888.8
142.5°	899.2	904.7	915.1	921.4	917.5
145°	929.4	928.6	942.1	947.7	943.7
147.5°	955.6	953.2	966.8	970.8	967.7
150°	981.1	975.6	988.4	993.1	989.1
152.5°	1002.7	996.3	1008.2	1013.0	1007.5
155°	1023.4	1016.3	1025.8	1030.5	1024.2
157.5°	1040.1	1033.7	1041.0	1046.5	1040.1
160°	1054.4	1049.6	1054.4	1059.2	1053.6
162.5°	1067.1	1062.4	1066.4	1072.0	1064.8
165°	1078.3	1073.6	1075.9	1081.5	1075.9
167.5°	1087.1	1082.2	1084.8	1090.3	1083.1
170°	1094.3	1089.5	1091.0	1096.7	1089.5
172.5°	1099.0	1094.3	1095.9	1101.5	1094.3
175°	1102.9	1097.4	1099.0	1104.6	1096.7
177.5°	1104.6	1099.0	1099.8	1105.5	1098.3
180°	1100.7	1100.7	1100.7	1100.7	1100.7

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CIE UGR TABLE:

Reflectances:											
Ceiling		0.7	0.7	0.5	0.5	0.3	0.7	0.7	0.5	0.5	0.3
Wall		0.5	0.3	0.5	0.3	0.3	0.5	0.3	0.5	0.3	0.3
Reference plane		0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2
Room dimensions		Viewed crosswise					Viewed endwise				
X=2H	Y=2H	10.81	11.77	11.67	12.65	13.77	10.36	11.32	11.23	12.21	13.33
	3H	12.47	13.33	13.35	14.23	15.37	11.98	12.84	12.86	13.74	14.88
	4H	13.06	13.87	13.95	14.78	15.93	12.56	13.38	13.46	14.28	15.44
	6H	13.46	14.21	14.37	15.12	16.29	12.96	13.71	13.87	14.62	15.79
	8H	13.57	14.28	14.48	15.21	16.38	13.06	13.78	13.98	14.71	15.87
	12H	13.62	14.30	14.53	15.22	16.41	13.11	13.79	14.03	14.71	15.90
4H	2H	11.28	12.09	12.17	12.99	14.15	10.92	11.73	11.82	12.64	13.79
	3H	13.14	13.82	14.05	14.76	15.93	12.74	13.42	13.65	14.35	15.52
	4H	13.86	14.48	14.78	15.41	16.61	13.43	14.05	14.36	14.98	16.18
	6H	14.38	14.91	15.31	15.86	17.06	13.94	14.48	14.88	15.43	16.63
	8H	14.52	15.02	15.46	15.97	17.18	14.09	14.59	15.03	15.54	16.75
	12H	14.60	15.05	15.56	16.02	17.23	14.15	14.60	15.11	15.57	16.78
8H	4H	14.06	14.56	15.00	15.51	16.72	13.68	14.18	14.62	15.13	16.34
	6H	14.69	15.10	15.65	16.09	17.30	14.30	14.72	15.27	15.71	16.92
	8H	14.91	15.27	15.88	16.25	17.48	14.51	14.88	15.49	15.86	17.09
	12H	15.04	15.36	16.02	16.33	17.61	14.63	14.95	15.61	15.92	17.20
12H	4H	14.05	14.50	15.01	15.46	16.68	13.68	14.13	14.64	15.10	16.31
	6H	14.72	15.08	15.69	16.06	17.29	14.34	14.71	15.32	15.69	16.92
	8H	14.96	15.28	15.94	16.25	17.53	14.58	14.90	15.56	15.87	17.15